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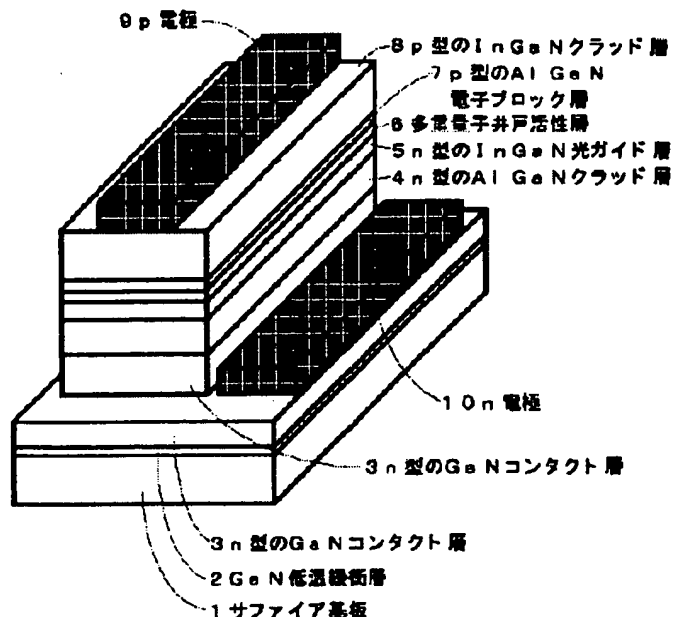
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APPLICANT : NIPPON TELEGR & TELEPH CORP
<NTT>;

INVENTOR : KOBAYASHI NAOKI;

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TITLE : NITRIDE SEMICONDUCTOR LIGHT
EMITTING ELEMENT



ABSTRACT : PROBLEM TO BE SOLVED: To solve the problem raised by the conventional nitride semiconductor light emitting element that the p-type AlGaIn constituting the clad layer of the element has a very high electrical resistance and lowers the internal quantum efficiency of the active layer of the element when a voltage drop or a temperature raise occurs.

SOLUTION: A nitride semiconductor light emitting element is constituted by successively laminating a GaN low-temperature buffer layer 2 having the thickness of 30 nm, Si-doped n-type GaN contact layer 3 having the thickness of 3 μm , Si-doped n-type $\text{Al}_{0.05}\text{Ga}_{0.95}\text{N}$ clad layer 4 having the thickness of 0.5 μm , Si-doped n-type $\text{In}_{0.05}\text{Ga}_{0.95}\text{N}$ light guide layer 5 having the thickness of 0.2 μm and a GaN ratio which is different from that the conventional example, multiple quantum well active layer 6 composed of three cycles of $\text{In}_{0.2}\text{Ga}_{0.8}\text{N}$ quantum well layers having the thickness of 4 nm and $\text{In}_{0.05}\text{Ga}_{0.95}\text{N}$ barrier layers having the thickness of 8 nm, Mg-doped p-type $\text{Al}_{0.2}\text{Ga}_{0.8}\text{N}$ electron blocking layers 7 having the thickness of 20 nm, and Mg-doped p-type InGaIn clad layer 8 which is formed without using the p-type AlGaIn and has the thickness of 0.6 μm on the (0001) surface of a sapphire substrate 1 by the metal organic vapor phase growth method.

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